

**CLAIMS**

1. A synthesiser comprising:  
a memory, containing a plurality of stored samples;  
5 means for calculating an output sample for each of a plurality of active voices using a plurality of samples selected from the stored samples for each of the active voices, the number of samples selected being defined as an interpolation degree; wherein the interpolation degree depends upon the number of active voices.
- 10 2. A synthesiser as claimed in claim 1, wherein the interpolation degree decreases as the number of active voices increases.
3. A synthesiser as claimed in claim 1, wherein the interpolation degree decreases non-linearly as the number of active voices increases.
- 15 4. A synthesiser as claimed in one of claims 1 to 3 wherein the plurality of samples stored in the memory comprise samples of musical notes.
5. A synthesiser as claimed in claim 4 wherein the plurality of samples stored in the  
20 memory comprise samples of musical notes produced by different musical instruments.
6. A synthesiser as claimed in any preceding claim wherein the means for calculating an output sample is adapted to multiply each selected sample with a respective filter coefficient obtained from a filter table.
- 25 7. A synthesiser as claimed in claim 6 wherein the filter table contains coefficients of a truncated sinc function.
8. A synthesiser as claimed in any preceding claim, wherein the synthesiser is a MIDI  
30 music synthesiser.
9. A portable device, comprising a synthesiser as claimed in any preceding claim.
10. A portable device as claimed in claim 9 wherein the portable device is a mobile  
35 phone.

11. A portable device as claimed in claim 9 wherein the portable device is a pager.
12. A method of operating a synthesiser having a plurality of samples stored in a memory, the method comprising the steps of:
- 5       determining the number of voices that will be active in producing a sound;  
          determining an interpolation degree on the basis of the number of voices that will  
be active, wherein the interpolation degree is defined as the number of samples to be  
selected from the plurality of samples stored in the memory; and  
          calculating an output sample for each active voice, using the number of said  
10       stored samples determined by the interpolation degree.
13. A method as claimed in claim 12, wherein the interpolation degree decreases as  
the number of active voices increases.
- 15   14. A method as claimed in claim 12, wherein the interpolation degree decreases non-  
linearly as the number of active voices increases.

11: 526522

1/5

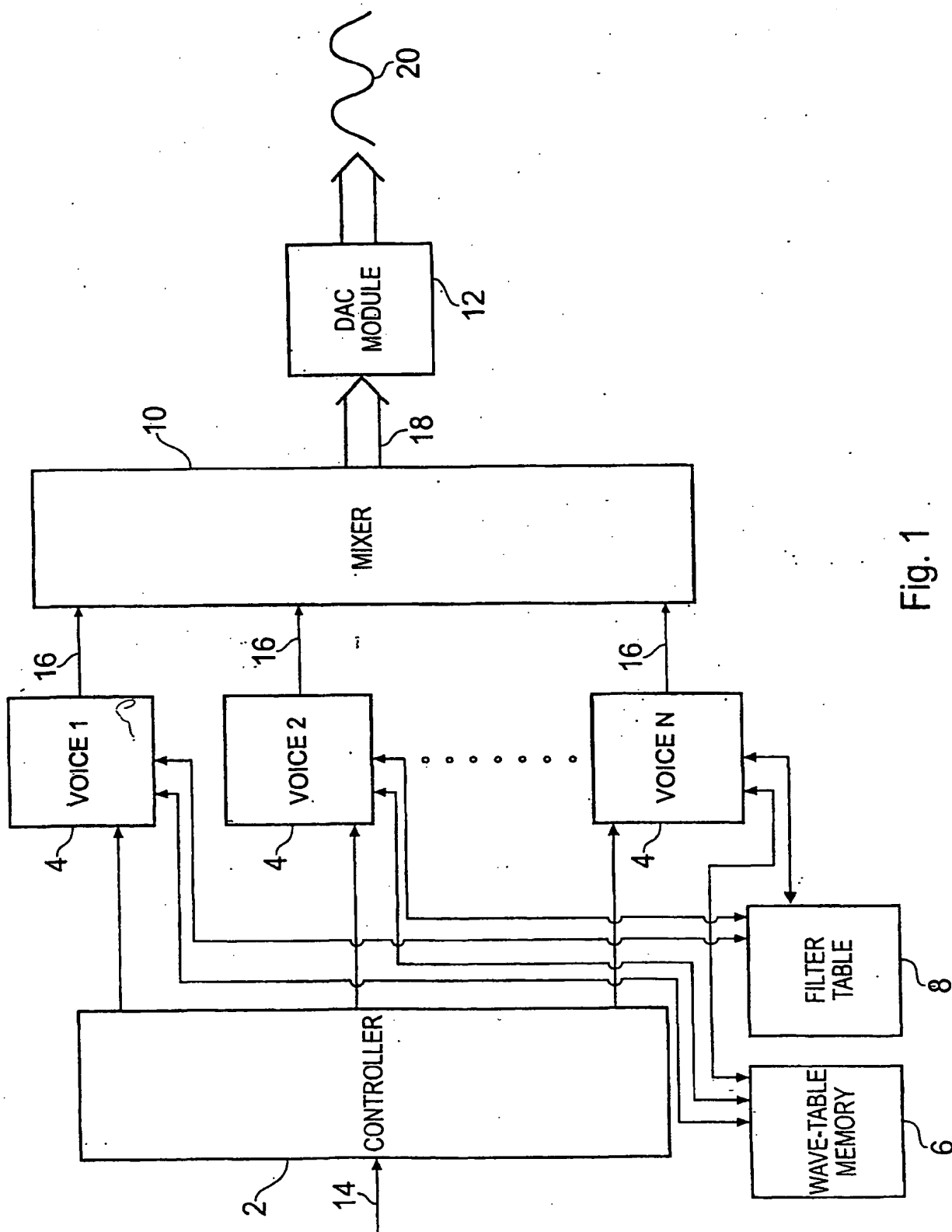


Fig. 1

10/526522

2/5

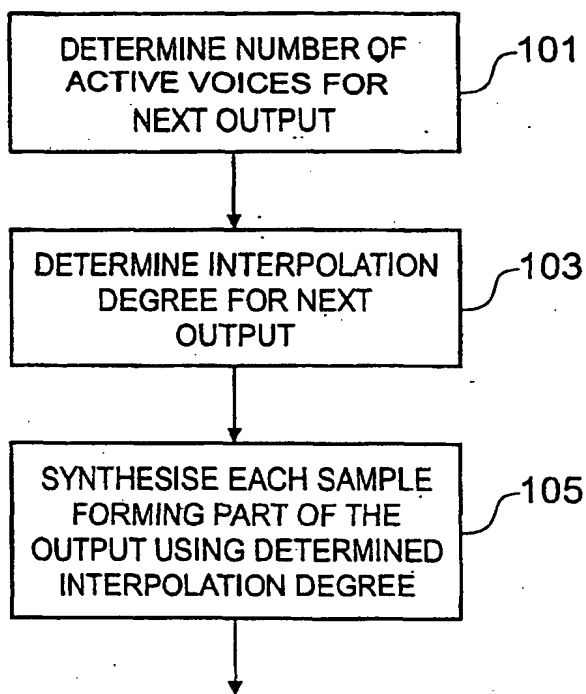


Fig. 2

10/526522

3/5

NO. ACTIVE VOICES	INTERPOLATION DEGREE
1	11
2	11
3	11
4	11
5	11
6	11
7	11
8	11
9	11
10	10
11	9
12	8
13	7
14	7
15	6
16	6
17	5
18	5
19	5
20	5
21	4
22	4
23	4
24	4

Fig. 4

NO. ACTIVE VOICES	INTERPOLATION DEGREE
1	11
2	11
3	11
4	10
5	10
6	10
7	9
8	9
9	9
10	8
11	8
12	8
13	7
14	7
15	7
16	6
17	6
18	6
19	5
20	5
21	5
22	4
23	4
24	4

Fig. 3